

REMARKS

Figures 1a, 1b, 4, 5, 6, 7, 8, 9a, 9b, 10, 11 and 12 of the Drawings have been amended to include some reference signs already illustrated in some other Figures of the Drawings. No new subject matter has been added. The structure of the sealing member, naming the two seals in the form of plastic rings (6), are installed on top and bottom of the weight (5) to prevent friction between the piston/weight (5) and the interior of the post (2) (refer to first paragraphs of page 4, and items 2-4 of page 6 of the disclosure as originally filed), as shown in pending Figure 3a (as originally filed).

The abstract of the disclosure and the disclosure have been amended to conform the same to the amended claims, to improve the idiom and clarity, and to correct typographical errors. No new subject matter has been added.

More specifically, the reference sign "34" shown in Fig. 3c as originally filed has been incorporated into the disclosure.

Furthermore, the phrases "carriage displacement unit longitudinally displacing the carriage relative to the lateral arm" and "the weight has sufficient mass to lift the object" do not appear in the newly amended specification. It is to be noted that it would be obvious to anyone having ordinary skills in the art that in the present invention the weight has an "effective mass" (because of the configuration of the cable path between the carriage and the object attachment member, as shown in Figure 8 as originally filed) larger than the mass of the object so that it is used to lift the object by gravity (refer to page 6, end of item 4 of the original disclosure). The present lifting system is used to lift any object having a mass less than the effective mass of the weight, i.e. twice the actual mass of the weight of the preferred embodiment illustrated in original Figures 1 to

11, with a vertical displacement of the weight being twice that of the object (refer to page 6, item 5 of the original disclosure). (Emphasis added)

Also, for clarity purposes, all appearances of the word "counterweight" has been replaced by -- weight -- since it is a weight used to lift an object attached to the system rather than a counterweight usually used to balance the mass of a suspended object, as it would be obvious to one having skill in the art. The mass of the weight (5) is used for lifting any object with a mass smaller than a predetermined mass by canceling its mass (otherwise the object would not raise), as opposed to a counterweight that would need to have a predetermined mass depending on the suspended object to balance the mass thereof. With a counterbalance, either an operator or an external actuator is needed to displace the suspended object, as opposed to the present invention in which the weight itself is the actuator used to lift the object. In the present invention, if the operator maintains an object at a predetermined height using the lifting system, it is obvious that the overall system (the weight and the weight displacement system), and not the weight alone, do momentarily counterbalance the mass thereof. (Emphasis added)

More specifically, from the Webster's Dictionary (second edition, 1997), a **counterweight** is "*a weight used as a counterbalance*"; and a **counterbalance** is "*a weight balancing another weight*" or "*an equal power or influence acting in opposition*"; which is not the case at all for the weight (5) of the present invention.

The claims 9-19, 34-36, 43, 44, 47, and 48 have been amended to overcome the Examiner's rejections under 35 U.S.C. 103(a), 112, 1st and 2nd paragraphs, and to improve the idiom. No new subject matter has been added.

As required under 37 C.F.R. 1.121 enclosed herewith on separate pages is a marked up version of the above amended paragraphs and claims.

Rejection under 35 U.S.C. 112, 1st paragraph

Reconsideration of the rejection of claims 9-19, 34-36, and 43-48 under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, has possession of the claimed invention, is respectfully requested since, in amended independent claim 9, the phrase "carriage displacement unit for longitudinally displacing the carriage along the lateral arm" has been deleted, and the phrase "said weight having a mass sufficient to lift the object supported by said cable when being downwardly displaced by gravity relative to said post" has been replaced by the phrase - whereby the object is being lifted via said cable upon downward displacement of said weight relative to said post under gravity – that is fully inferable from the disclosure as originally filed (refer to page 6, end of item 4, and the middle section of page 5 of the original disclosure).

Rejection under 35 U.S.C. 112, 2nd paragraph

Reconsideration of the rejection of claims 9-19, 34-36, and 43-48 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, is respectfully requested since the unclear phrase has been deleted from the amended independent claim 9.

Rejection under 35 U.S.C. 103(a)

Reconsideration of the rejection of claims 9-19, 34-36, and 43-48 under 35 U.S.C. 103(a) as being unpatentable over Maxfield et al. (US Pat. 896,406) in view of Thierion (US Pat. 5,059,086) is respectfully requested for the following reasons.

Re claim 9: Neither Maxfield et al. nor any other cited reference discloses or even suggests a system for lifting and moving an object from one point to

another and comprising: (a) a partially hollow post having a generally vertical axis thereof; (b) a weight disposed within the post and defining a post chamber thereunder, the post chamber being fillable with a pressurized fluid; (c) a weight displacement system longitudinally and upwardly displacing the weight relative to the post, the weight displacement system controlling pressure inside the post chamber so as to selectively position the weight along the post; (d) a transversal arm rotatably connected to the post for rotation about said vertical axis and including a proximal end located near the post and a distal end located away from the post; (e) a cable having one end attached to the weight and the other end attached to the distal end of the transversal arm; (f) a carriage connecting to the cable and mounting on the transversal arm; and (g) an object attachment member connecting to the cable for attaching the object thereto; whereby the object is being lifted via the cable upon downward displacement of the weight relative to the post under gravity and being lowered upon upward displacement of the weight relative to the post under pressurized fluid within the post chamber. (Emphasis added)

It is to be noted that all above amendments of claim 9 are fully inferable from the application as originally filed. The post chamber being fillable with a pressurized fluid of item b) was disclosed in top portion of pages 2 and 4, lower half of page 5, item 4 of page 6, and claims 7 and 11 of the application as originally filed. The weight displacement system controlling pressure inside the post chamber of item c) was disclosed in top portion of page 4, and middle portion of page 5 of the application as originally filed. The fact that the object is being lifted via the cable by the downward displacement of the weight by gravity was disclosed in middle portion of page 5, and item 4 of page 6 of the application as originally filed.

Furthermore, Maxfield et al.'s apparatus does not disclose or even suggest any weight used to lift an object when longitudinally displaced down within the vertical mast (2) under gravity. It simply discloses a winding gear (5) connected to the mast (2) to wind the cable or chain (23) there around. Although

it is mentioned that the boom (16) may be freely rotated in any direction and by means of the hoisting drum the load (object) can be brought to any point within the circle described by the length of the radius of the boom (see page 2, lines 25-29), Maxfield et al.'s jib crane could not allow the boom to continuously rotate in a same direction (beyond 180 degrees or even more) without significantly twisting the cable and affect operation thereof, as opposed to the present invention in which the weight (piston) is also free to rotate along with the boom and the cable without affecting or opposing any constraint to the operation of the present lifting system. (Emphasis added)

Furthermore, Thierion teaches a balanced handling device in which one end of a flexible cord is attached to a grasping tool while the other end is coupled to a balancing device developing a balancing force that is adjustable between two values depending on whether the tool is loaded or unloaded (see abstract). Thierion's device uses a magnetic-pneumatic system to re-balance the grasping tool once the latter has been loaded in a raised position by using a pressurized fluid that forces and maintains the weight (20 and 23) in a lower position (downward displacement) within the upright or post (9) since the counterweight (20) has a mass that only counterbalances the unloaded tool at the vertical position adjusted by the position of the magnetic piston (23) within the tubular body (21) (see col. 3, lines 16-25). The counterweight (20) is sized to exactly counter balance the mass of the tool object (see col. 2, lines 43-44) such that the use of Thierion's device is substantially limited, as opposed to the present invention in which the weight is used to lift any object with a mass being between zero and the "effective mass" (see above) of the weight such that the lifting system may lift and move many different objects of different mass without any limitation or constraint other than the "effective mass" of the weight. Also, the arm (11) of Thierion's device is static and does not rotate about the vertical axis of the upright (9). (Emphasis added)

Accordingly, it is respectfully believed that it would not have been obvious at all to one having ordinary skill in the art at the time Applicant's invention was

made, and even possible, to physically combine, without significant ingenious mechanical and conceptual modifications, a balancing device as taught by Thierion into the crane device of Maxfield et al. or apparatuses from any of the cited references to provide an system for lifting and moving an object as disclosed and claimed hereinabove since there is no suggestion of any desirability in any of the references for such combinations. (Emphasis added) This suggestion of combination however constitutes a prerequisite for a combination rejection as stated by the Patent Office Board of Appeal in its decision ex parte Walker 135 USPQ 195:

"In order to justify combination of references it is necessary not only that it be physically possible to combine them, but that the art should contain something to suggest the desirability of doing so."

The Court of Customs and Patent Appeal subscribes to the Board's reasoning when it handed down its decision in the case in re Inperato, 179 USPQ, 730 holding:

"The fact that the disclosures of references can be combined does not make combination obvious unless the art also contains something to suggest the desirability of such combination."

Re claims 10-19, 34-36 and 43-48: Amended dependent claims 10-19, 34-36, and 43-48 are respectfully believed to patentably distinguish the invention over the prior art cited by the Examiner for the similar reasons set out hereinabove with respect to claim 9, since they respectively depend thereon.

Reconsideration of the rejection of claims 18 and 19 under 35 U.S.C. 103(a) as being unpatentable over Maxfield et al. (US Pat. 896,406) in view of Thierion (US Pat. 5,059,086), and further in view of Hageman (US Pat.

4,955,923) or Uppgard et al. (US Pat. 6,176,170) is respectfully requested for the following reasons.

Re claims 18 and 19: Amended dependent claims 18 and 19 are respectfully believed to patentably distinguish the invention over the prior art cited by the Examiner for the similar reasons set out hereinabove with respect to claim 9, since they respectively depend thereon.

It is to be noted that either Hageman or Uppgard et al. discloses an opening that extends through the piston; the opening being generally closed by a biasing spring or the like and being opened when pre-determined conditions occur to prevent breaking, shock, rapid displacement or the like. Which is totally different than the present invention in which the opening or gap in the sealing member is always opened such that pressurized fluid (or air) continuously flows there through irrespective of the displacement direction of the weight relative to the post to continuously at least partially reduce friction there between. (Emphasis added)

It is respectfully submitted that when the rejection of the claims is reviewed in light of Applicant's arguments, the invention without a doubt should be considered patentably distinguished over the currently applied references. It is now believed the above application, including amended claims 9-19, 34-36 and 43-48, is in order for Allowance over the art cited by the Examiner and such action would be appreciated.

Amended claims 9-19, 34-36 and 43-48 do read on the previously elected species, and amended claims 9-12 and 34-36 and new claims 43 and 45-48 still appear to be generic. It is respectfully emphasized that withdrawn claims 20-23 refer to a "liquid displacement means" which, when compressed, performs exactly the same way as pressurized gas or air does to lift the weight from underneath, as it would be obvious to one skilled in the art. In the opposite, any uncompressed liquid means that would be located above the weight to act as additional weight, as any solid means would do, is respectfully believed to be different and withdrawn from further consideration.

Request for Constructive Assistance

The undersigned has made a diligent effort to respond to the Office Action. If for any reason the claims of this application are not believed to be in full condition for allowance, applicant respectfully requests the constructive assistance and suggestions of the Examiner in drafting one or more acceptable claims pursuant to MPEP 707.07(j) or in making constructive suggestions pursuant to MPEP 706.03(d) in order that this application can be placed in allowable condition as soon as possible and without the need for further proceedings.

Respectfully submitted,

By


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- Encl. - Request for Continued Prosecution Form with corresponding fee (form PTO-2038).
- New Formal Figures 1a, 1b, 4-8, 9a, 9b, and 10-12 of the Drawings.
- Pending version of Figures 1a, 1b, 4-8, 9a, 9b, and 10-12 of the Drawings with modifications highlighted in red by hand.

U02

VERSION WITH MARKINGS TO SHOW CHANGES MADE

The modifications are shown by underling (xxx) and strikethrough and square brackets (~~[xxx]~~) for added and deleted matter, respectively; short vertical lines on the right hand side of the page indicate lines with modification(s).

IN THE ABSTRACT:**Amended abstract of the disclosure:**

-- A system for lifting and moving an object includes ~~[comprising]~~ a vertical post (2), having a transversal lifting arm (38) rotatably connected thereto for rotation about a vertical axis thereof. The ~~[pivotably mounted thereon. Said]~~ vertical post includes a weight ~~[comprising a piston]~~ (5) acting as a piston connected to a carriage (50) slidably mounted on the ~~[said]~~ lifting arm, such that down and up displacements ~~[operation]~~ of the weight by gravity or pressurized fluid respectively ~~[said piston can]~~ lower and raise the ~~[said]~~ object accordingly. --

IN THE DESCRIPTION:

Amended full description:

-- SYSTEM FOR LIFTING AND MOVING AN OBJECT

CLAIM OF PRIORITY

This application claims priority under 35 USC § 119(e) to U.S. Patent Application Serial No. 60/268,300, filed on February 13, 2001, the entire contents of which are hereby incorporated by reference.

Technical Field

The invention relates to apparatuses for lifting objects and displacing them from one location the other.

Background Art

Many apparatuses for lifting and moving objects from one location to the other are known. Various apparatuses used to lift abject and displace them from one location to the other using lateral arms and counter weights are known. See for example Japanese Patent Application of Motoda published under no. 06126664. Other known apparatuses used hydraulic or pneumatic pistons connected to lateral arms using pulleys. See for example US Patents 536,399 (Sawers), 560,125 (Falkenau et al.), 700,162 (Wiley), 2,446,488 (Pierce), 2,476,192 (Hall), 2,562,066 (Scott et al.), PCT Application no. WO98/15487 (Vestin), European Patent Application published under no. 0 254 840 (Gebauer), German Patent 30 02 577 (Shrouder et al.), German Patent 29 18 010 (Häring), Russian Patent 1,781,156 and French published application no. 2,764,591 (Foillard et al.). However, they are cumbersome to use and costly to manufacture.

Summary of the Invention

This apparatus has three distinct objects:

- a) Cancel the mass ~~[weight]~~ of an abject to be lifted by a ~~[counter]~~weight;
- b) Allow the operator to lift and lower an abject with ease; and
- c) Move an object with a radius between two to 12 feet at 360 degrees.

It is impossible to abuse or break this equipment due to the fact that it can only lift an object using 99% of the mass of the ~~[counter]~~weight. Friction of mechanical elements is the reason for the 1% loss.

Using the supporting post as the compression chamber allows 360 degree continuous movement.

The proximity ~~[closeness]~~ of the two pulleys of the carriage supporting the object attachment member via the cable induces a braking ~~[carriage system produces a breaking]~~ effect in the event the operator would try to raise the object ~~[counterweight]~~ too high because of the local angle provided to the cable between each pulley and the object attachment member.

The invention relates to a system and apparatus to lift and move an abject from one location to another, composed of:

- a. [A] a partially hollow ~~[vertical]~~ post having a generally vertical axis;
- b. [A counterweight] a weight disposed within said post and defining a post chamber thereunder, said post chamber being fillable with a pressurized fluid;

- c. a weight displacement system longitudinally and upwardly displacing the weight relative to said post, said weight displacement system controlling pressure inside said post chamber so as to selectively position said weight along said post; [First means allowing the counterweight to move vertically.]
 - d. a transversal arm rotatably connected to said post for rotation about said vertical axis and including a proximal longitudinal end located near said post and a distal longitudinal [A lateral arm pivotally held to said vertical post and comprising the first proximal end located near said post and a second distal] end located away from said post;
 - e. [A] a cable having one end attached to said [counter]weight and the other end attached to said distal end of the transversal [lateral] arm;
 - f. [A] a carriage connecting to [supporting] said cable and mounting on said transversal [;
 - ~~g. Second means allowing the longitudinal displacement of the carriage along said lateral] arm; and~~
 - g[h]. an object attachment member connecting to said cable for attaching the object thereto;
- whereby the object is being lifted via said cable upon downward displacement of said weight relative to said post under gravity and being lowered upon upward displacement of said weight relative to said post under pressurized fluid within said post chamber [Means to support said load attached to said cable].

Brief description of the drawings

Figure 1a is a perspective view of a lifting system in accordance with the invention;

Figure 1b is a top view of the system shown in figure 1a;

Figure 1c is a detailed view of the portion of figure 1a shown in "D";

Figure 2 is a detailed view of the portion of figure 3a shown in "B";

Figure 3a is a partial cross-section of the system along line A-A in figure 1b;

Figure 3b is a detailed cross-sectional view of the portion of figure 3a shown in "C";

Figure 3c is a partial cross-sectional side view of the base of the system shown in figure 1a;

Figure 4 is another perspective view of a lifting system in accordance with the invention;

Figure 5 is a detailed view of the portion of figure 4 shown in "E";

Figure 6 is another partial view of the portion of figure 4 shown in "E" with sections taken out;

Figure 7 is a perspective view of a pulley sub-system of the carriage for use with a system in accordance with the invention;

Figure 8 is another perspective view of a pulley sub-system shown in figure 7 in which a portion of the pulley housing of the attachment block has been removed;

Figure 9 is a perspective view of an arm sub-system for use with a system in accordance with the invention;

Figure 9b is a perspective view of a base for use with a system in accordance with the invention;

Figure 10 is a perspective view of a cable sub-system for use with a system in accordance with the invention;

Figure 11 is a partial perspective view of a pulley sub-system for use with a system in accordance with the invention; and

Figure 12 is a [another] partially broken section [perspective] view of an arm rotating joint [a pulley sub-system] for use with a system in accordance with the invention.

Description of a preferred embodiment

The apparatus consists in a generally transversal [an] arm or rail (38) fastened to the top of a post (2). For example, the rail (38) may be 12 foot long steel rail and the post may be a cylindrical steel post having an 8 inch diameter. The height of the post is selected in accordance with the limitation of the work area (for example 8 to 12 feet in height).

A [counter]weight (5) is disposed inside the hollow post (2) in such a way that it may be raised and lowered within the post. Sealing means (6), such as joints or o-rings, are disposed around the [counter]weight so as to seal the space between the [counter]weight and the interior of the post. The sealing means are preferably provided with an opening to allow a predetermined flow of air or gas to pass therethrough.

The rail (38) is fastened to the post (2) with the use of a rotating joint (40), or arm connecting system, which allows its unlimited and unobstructed continuous [a] 360°, and more, movement around the post about the post axis.

A hole is provided in the rotating joint (40) to allow the free movement of a cable (29) while the [counter]weight (5) rises or lowers. As shown in figures 2, 10, 11 and 12, the rotating joint (40) is located in the center of a cover (35) attached to the top of the post (2). Cable (29) passes through a guide (24) and around a pulley (41) which turns around an horizontal axis (20). A bearing (42) is disposed between guide (24) and support cylinder (21) which is fixed to the rail (38) by bolts (23) or other known means. A spacer (22) is disposed between cover (35) and support (21).

The rail (38) is supported by two elongated supports or braces (26) having one longitudinal end fixed to the rail (38) and the opposed longitudinal end attached by bolts or other known means to a rolling block (27). The rolling block (27) can move laterally in a tangential direction on the outside of the post (2) with the help

of two bearings (28). A generally vertical support brace (25) positioned parallel to and in close spaced apart relationship relative to the post (2) has one end fixed to the proximal end of the rail (38) and the other end fixed to the rolling block (27). The vertical brace (25) that ensures rigidity to the system maintains the rolling block (27) at a predetermined distance away from the rail (38).

A small carriage (50) is installed inside the rail (38) to allow the load to move freely along the rail (38). As illustrated in figures 3b, 7 and 8, the small carriage 50 comprises two generally coplanar pulleys (11) turning around an axis (13) around which is disposed cable (29). The carriage (50) also includes a [A] wheel (12) [is] disposed on each side of the carriage (50). These generally coaxial wheels (12) are placed on rolling surfaces (17), for example a pair of hard steel strips disposed inside the rail (38). A bearing (14) is fixed to a vertical axis (16) to insure the alignment of the carriage within rail (38).

One end of cable (29) is attached to ~~counter~~weight (5). Cable 29 then is wrapped partially around one of the cable pulley (11 [43]) mounted on the carriage (50). Cable (29) then goes down to an object attachment member such as an attachment block (30) to which a hook, pincer or other means to attach a load is fixed. Cable (29) is then partially wrapped around a pulley within attachment block or member (30) (see figure 8) before returning to the second cable pulley (11) in the small carriage (50). From there, cable (29) reaches the other end of the rail (38) where it is attached to a cap (19) or other similar means.

Attachment block (30) also preferably is used as a small weight to ensure that cable (29) is maintained in tension such that it will not easily fall off from pulleys (11) ~~[and (43)]~~.

In the embodiment shown in the figures, the bottom of the post (2) is welded to a triangular base (1) anchored to the floor with (for example concrete anchors (3,

34) cast in epoxy). However, other known means may be used. The post (2) could also be fixed to a mobile base provided means are used to ensure that the post remains substantially vertical.

A sealing member is preferably made out of two [~~Two~~] seals in the form of plastic rings (6) are installed on top and bottom of the [~~counter~~]weight (5) to [~~(5)~~] prevent friction between the piston/~~[counter]~~weight (5) and the interior of the post (2). They are configured to let air or other gases leak at a predetermined rate, depending on the need.

A weight displacement system such as a valve (33) allows the control, the inflow of pressurized air stored in a source reservoir or generated by a compressor (not shown) within the post (2) under the [~~counter~~]weight (5) so as to lift the [~~counter~~]weight.

The predetermined air flow passing through the seal (6) around [~~counter~~]weight (5), [~~a~~] valve (33) or other similar means or a combination thereof allows the control of the outflow the removal of the air under the [~~counter~~]weight (5) so as to allow it to be lowered by gravity with the object attached thereto via the cable (29) being raised.

Weight [~~Counterweight~~] (5) preferably has the following characteristics:

1. The [~~counter~~]weight also acts as a piston.
2. Its rising movement is made possible with low air pressure at four pounds per square inches (4PSI).
3. The sealing principle of the [~~counter~~]weight (piston) is to use air friction when it is moved through a small opening or crack (not shown). This

principle allows the creation of air pressure below the piston using very little air.

4. Another advantage with this principle is the fact that the small air leak created causes the piston to stay centered in the tube and eliminates the wearing effect between the [counter]weight (5) and the interior of the post (2).
5. Along with insuring guiding and sealing, the use of this leaking system eliminates the need to pressurize the top of the piston or the use of an air exhaust valve. This system requires only the reduction or closing of the air intake to allow the [counter]weight to lower simply by gravity thus raising the object.

The [counter]weight (5) may be of variable weights. In such a case, it may be equipped with a trap or other known means on the bottom that allows rapid emptying. This container is preferably open on top. A tank installed on top of the apparatus can be filled with granular material or liquid using quiet moments. A trap or other known means on its bottom is used to fill the [counter]weight container as required.

The granular material or liquid can be raised to the tank [thank] by using a ¼HP small conveyor system with jars or buckets in a continuous movement.

Management of the [counter]weight can be made possible by using liquids (water, oil, mercury) or granular material (sand, steel balls, polymeric balls). If mercury is chosen, everything must be done in closed circuit in order to avoid possible environment contamination. It must be noted that mercury has the advantage of being very compact although extremely expensive.

A piece of rubber (7) bolted or otherwise attached to the bottom of the ~~[counter]~~weight eliminates impacts when lowering.

OPERATION

This equipment is a lifting arm (38) allowing easy handling of any solid object through an attachment block (30) which can be held by a suction disc, a magnet, a hook or any other holding system. When a 12 foot arm is used, the operator can handle the object within a diameter of 24 feet and controls the lifting and lowering by a remote control either wireless or connected. The stand on which the remote control is installed is also preferably used as a handle for the operator at the base of the lifting ~~[holding]~~ system. The lifting ~~[holding]~~ system can be of any applicable shape.

Using a melamine-coated sheet as an example, the operator inserts air under the ~~[counter]~~weight (5). As a result, the holding system (in this case the suction disk) lowers on top of the sheet. Once the sheet is appropriately held, he/she releases the air and the ~~[counter]~~weight is allowed to lower with the effect of gravity thus lifting the sheet. The operator can then move the sheet where required and reinsert air under the ~~[counter]~~weight to force it to raise thus lowering the sheet. Finally, he/she releases the sheet and is ready for another manoeuver.

The equipment shown in the figures is designed to handle small charges varying from 50 to 150 lbs. However, it is possible to build an apparatus to lift heavier loads by making the necessary changes to the ~~[counter]~~weight (5) and insuring that the other components are properly sized.

The [A-counter]weight (5) which also acts as a piston is placed inside the vertical post (2). The piston (5) may move up and down, preferably under pressure created by a gas or a fluid underneath the piston. It is also possible to use a

variable weight [~~counterweight~~] (5). For example a container having an open topside and a valve or tray on its underside. A fluid such as a liquid, or a granular substance and preferably within such elements as synthetic or natural oil, mercury, water, sand, metal, glass or polymer beads, etc.[...] may be introduced in the container to create the required mass.

The aforementioned piston (5) being firmly held by a cable (29) to the carriage (50) moving in or on and along the lateral arm (38) and forcing the attachment block [~~system~~] (30) to remain at the same distance from the carriage (50) no matter its position along [~~on~~] the arm (38).

Although a preferred embodiment of the invention has been described in detail herein and illustrated in the accompanying figures, it is to be understood that the invention is not limited to this precise embodiment and that various changes and modifications may be effected therein without departing from the scope or spirit of the present invention. --

IN THE CLAIMS:

Please amend pending claims 9-19, 34-36, 43, 44, 47, and 48 as follows:

-- 1.-8. (cancelled)

9(currently amended). System for lifting and moving an object from one point to another, said system comprising:

- a. a partially hollow post having a generally vertical axis;
- b. a weight disposed within said post and defining a post chamber thereunder, said post chamber being fillable with a pressurized fluid;
- c. a weight displacement system [for] longitudinally and upwardly displacing the weight relative to said post, said weight displacement system controlling pressure inside said post chamber so as to selectively position said weight along said post;
- d. a transversal [lateral] arm rotatably connected to said post for rotation about said vertical axis and including a proximal longitudinal end located near said post and a distal longitudinal end located away from said post;
- e. a cable having one end attached to said weight and the other end attached to said distal end of the transversal [lateral] arm;
- f. a carriage connecting to said cable and mounting on said transversal [;];
- ~~g. a carriage displacement unit for longitudinally displacing the carriage relative to said lateral] arm; and~~
- g[h]. an object attachment member connecting to said cable for attaching the object thereto;

whereby the object is being lifted via said cable upon downward displacement of said weight relative to said post under gravity and being lowered upon upward displacement of said weight relative to said post under pressurized fluid within said post chamber [; said

~~weight having a mass sufficient to lift the object supported by said cable when being downwardly displaced by gravity relative to said post].~~

10(currently amended). System as described in claim 9 comprising at least one elongated support having one end moveably connected to said post and the other end fixed to said transversal ~~[lateral]~~ arm.

11(currently amended). System as claimed in claim 9 further comprising an arm connecting system mounted on said proximal end of said transversal ~~[lateral]~~ arm for rotatably connecting said transversal ~~[lateral]~~ arm to said post about the vertical axis thereof.

12(currently amended). System as claimed in claim 9 wherein said transversal ~~[lateral]~~ arm is rotatably connected to said post for 360° movement therearound.

13(currently amended). System as claimed in claim 9 wherein said ~~[weight also constitutes a piston and said]~~ weight displacement system includes a valve connected to said post chamber for controlling pressure therein ~~[comprise a pressurized or compressed fluid].~~

14(currently amended). System as claimed in claim 13 ~~[9]~~ wherein said valve is mounted on a lower longitudinal end of said post ~~[is used as a compression chamber].~~

15(currently amended). System as claimed in claim 14 wherein said valve is connectable to a pressurized fluid source for selectively increase pressure inside said post chamber ~~[the pressure in said compression chamber is equal or less than about four pounds per square inch (4 PSI)].~~

16(currently amended). System as claimed in claim 15 [13] wherein said pressurized fluid is ~~[weight displacement means comprise]~~ pressurized air.

17(currently amended). System as claimed in claim 16 wherein the ~~[air]~~ pressure within said post chamber is equal or less than about four pounds per square inch (4 PSI).

18(currently amended). System as claimed in claim 9 wherein the weight is used as a piston and includes a ~~[also a piston comprising]~~ sealing member between the piston and the post ~~[and said weight displacement system comprise pressured air in the portion of the post located under the piston].~~

19(currently amended). System as claimed in claim 18 wherein said sealing member has an opening extending therethrough, said ~~[comprise an]~~ opening having a predetermined area to allow pressurized fluid to flow there through away from said post chamber so as to at least partially reduce friction between said weight and said post ~~[allowing air to escape there through].~~

20.-33. (withdrawn).

34(currently amended). System as claimed in claim 9 wherein said transversal arm ~~[carriage displacement unit]~~ includes a rail connected thereto, said carriage being freely displaceable along said rail ~~[to said lateral arm for displacement of said carriage therealong].~~

35(currently amended). System as claimed in claim 34 in which said carriage is configured to maintain ~~[displacement unit movably supports the carriage along said rail while maintaining]~~ said object attachment member at a

constant distance relative thereto [~~said carriage~~] during displacement of said carriage along said rail.

36(currently amended). System as claimed in claim 35 in which said carriage includes [displacement unit comprise] a plurality of cable pulleys freely rollably mounted thereon and connecting to said cable.

37.-42. (withdrawn).

43(currently amended). System as claimed in claim 9 wherein said transversal [~~lateral~~] arm is oriented in a generally perpendicular relationship relative to said post.

44(currently amended). System as claimed in claim 9 wherein said transversal [~~lateral~~] arm is rotatably connected to said post for unlimited continuous movement therearound about said vertical axis.

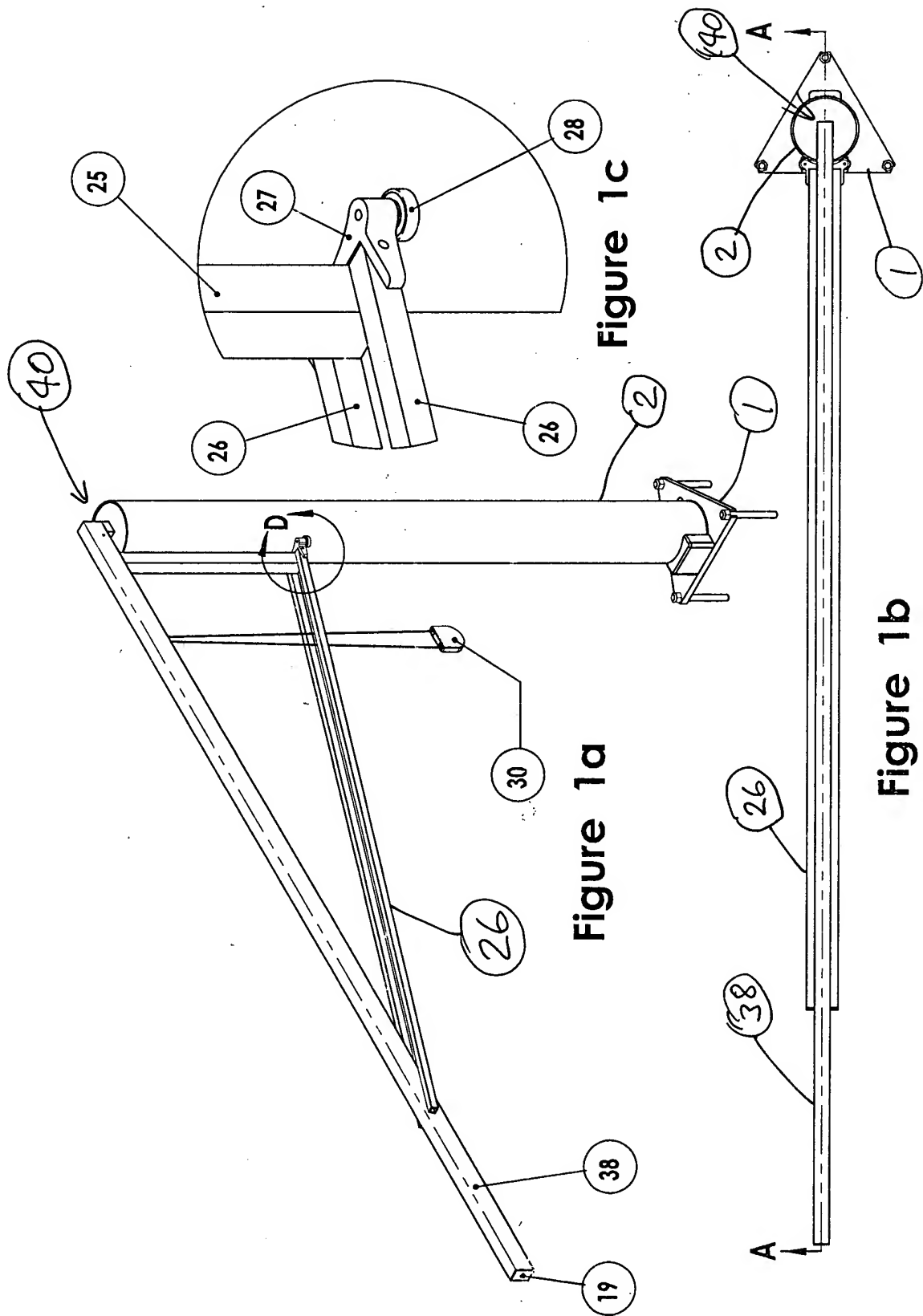
45(previously added). System as described in claim 10 wherein said one end moveably connected to said post is rollably mounted thereon so as to move in a tangential direction relative thereto about said vertical axis.

46(previously added). System as described in claim 45 wherein said one end moveably connected to said post is attached to a rolling block, said rolling block being in rolling engagement with said post so as to roll in a tangential direction relative thereto about said vertical axis.

47(currently amended). System as claimed in claim 35 wherein said carriage [~~displacement unit~~] includes two rollers engaging said rail, said two rollers being positioned in a coaxial relationship relative to one another.

48(currently amended). System as claimed in claim 36 wherein said carriage
[displacement unit] includes two cable pulleys engaged by said cable, said
two cable pulleys being positioned in a coplanar relationship relative to
one another. --

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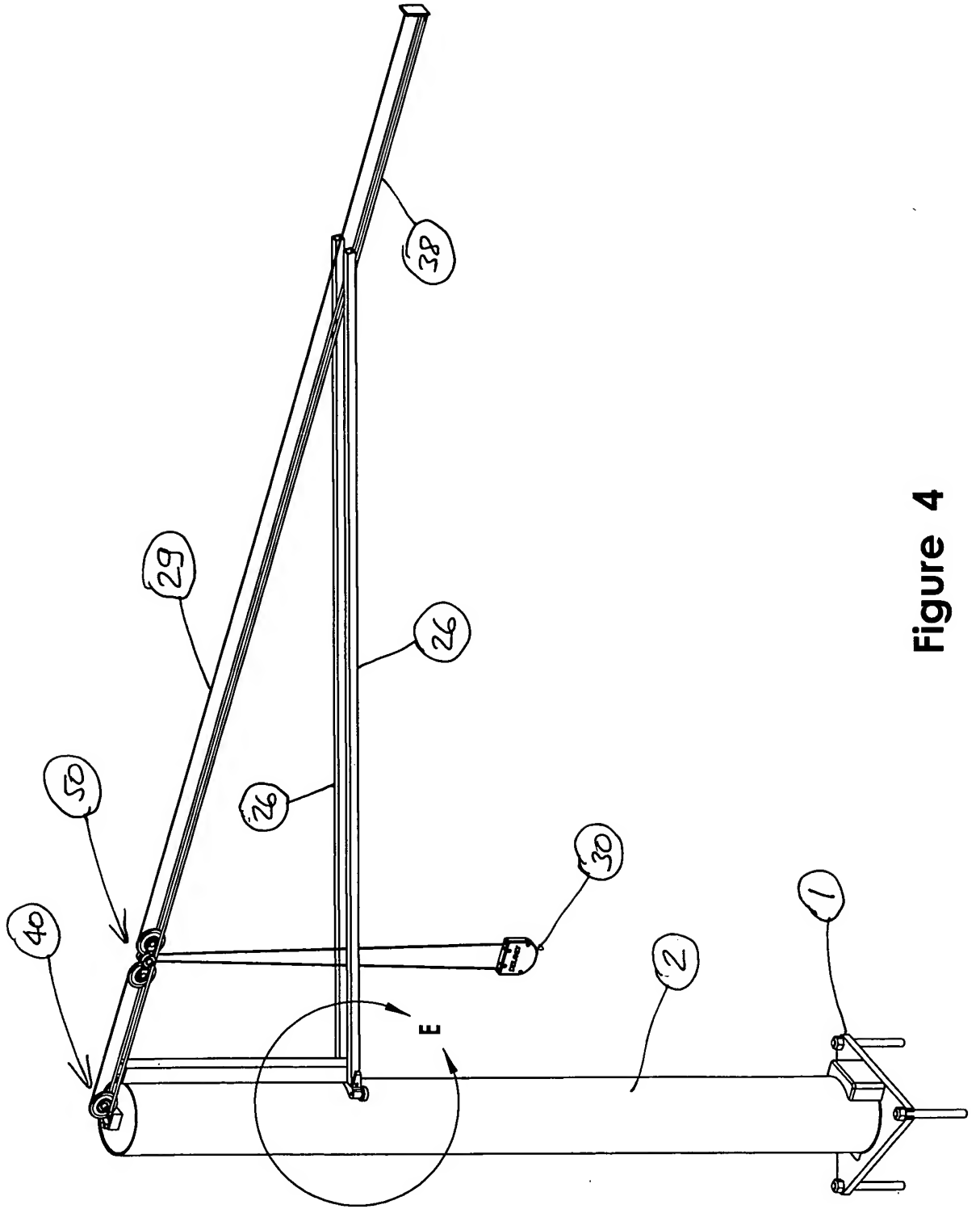


Figure 4

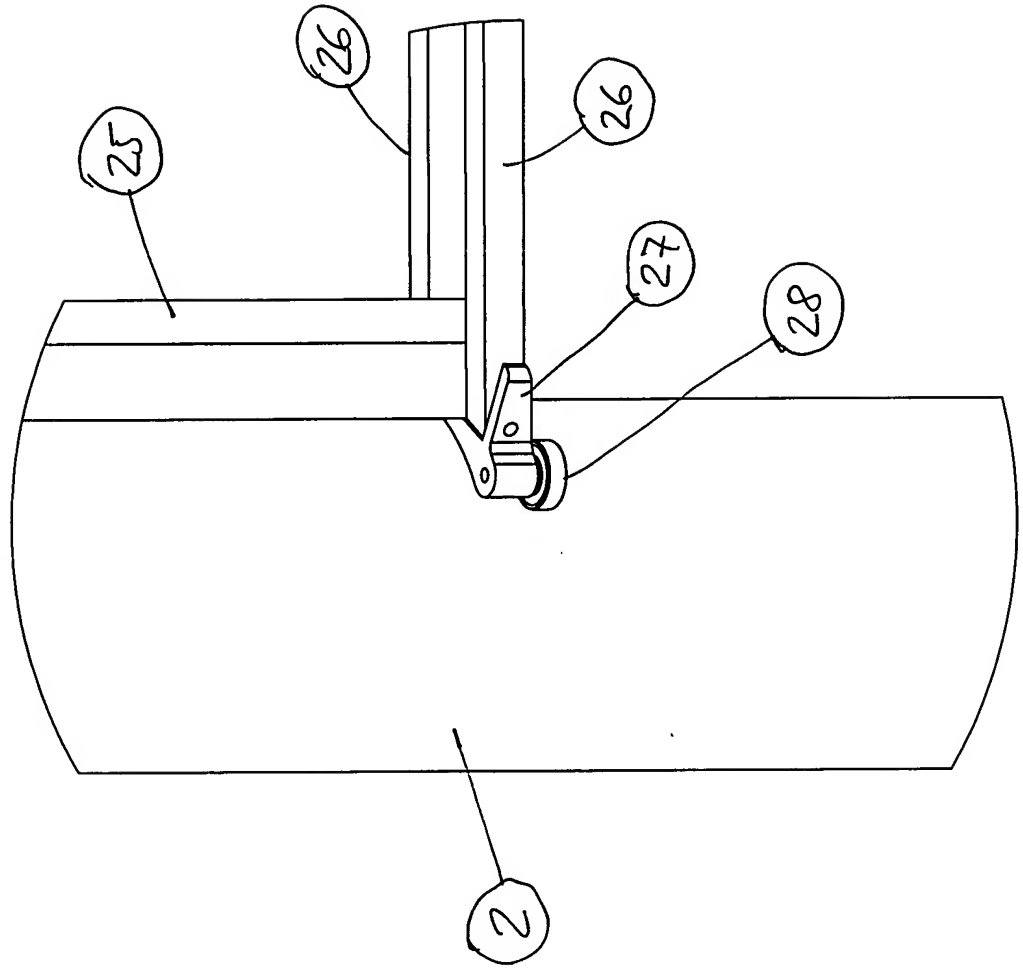


Figure 5

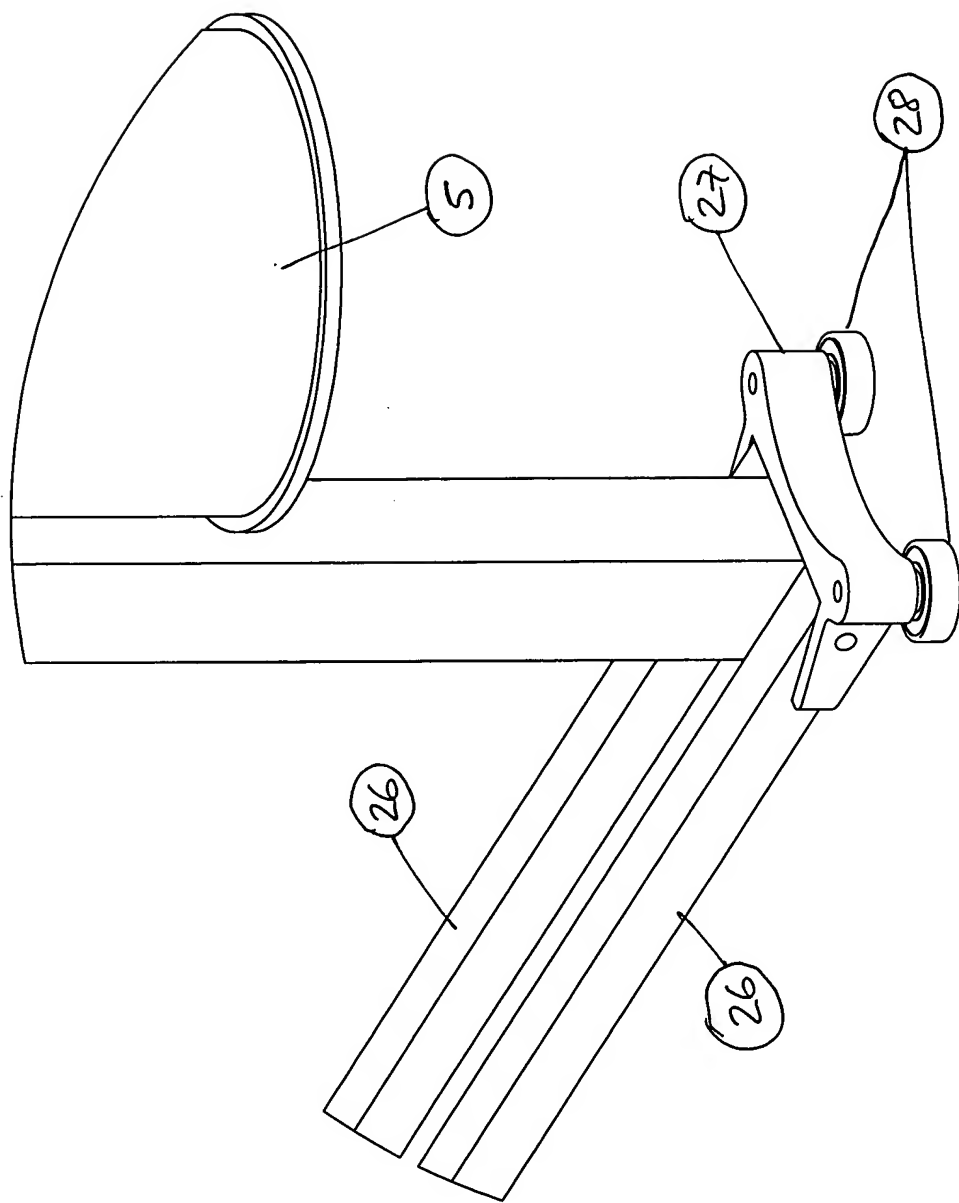


Figure 6

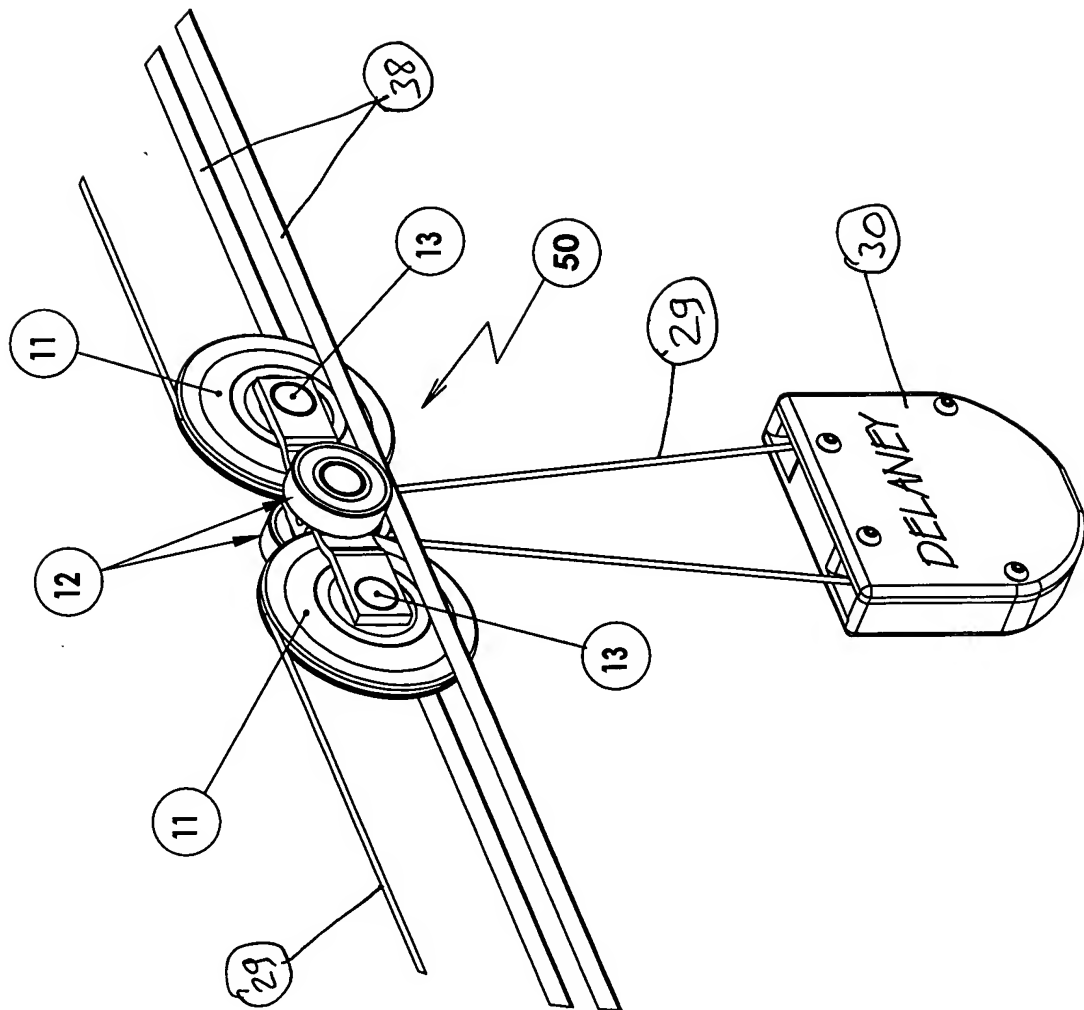


Figure 7

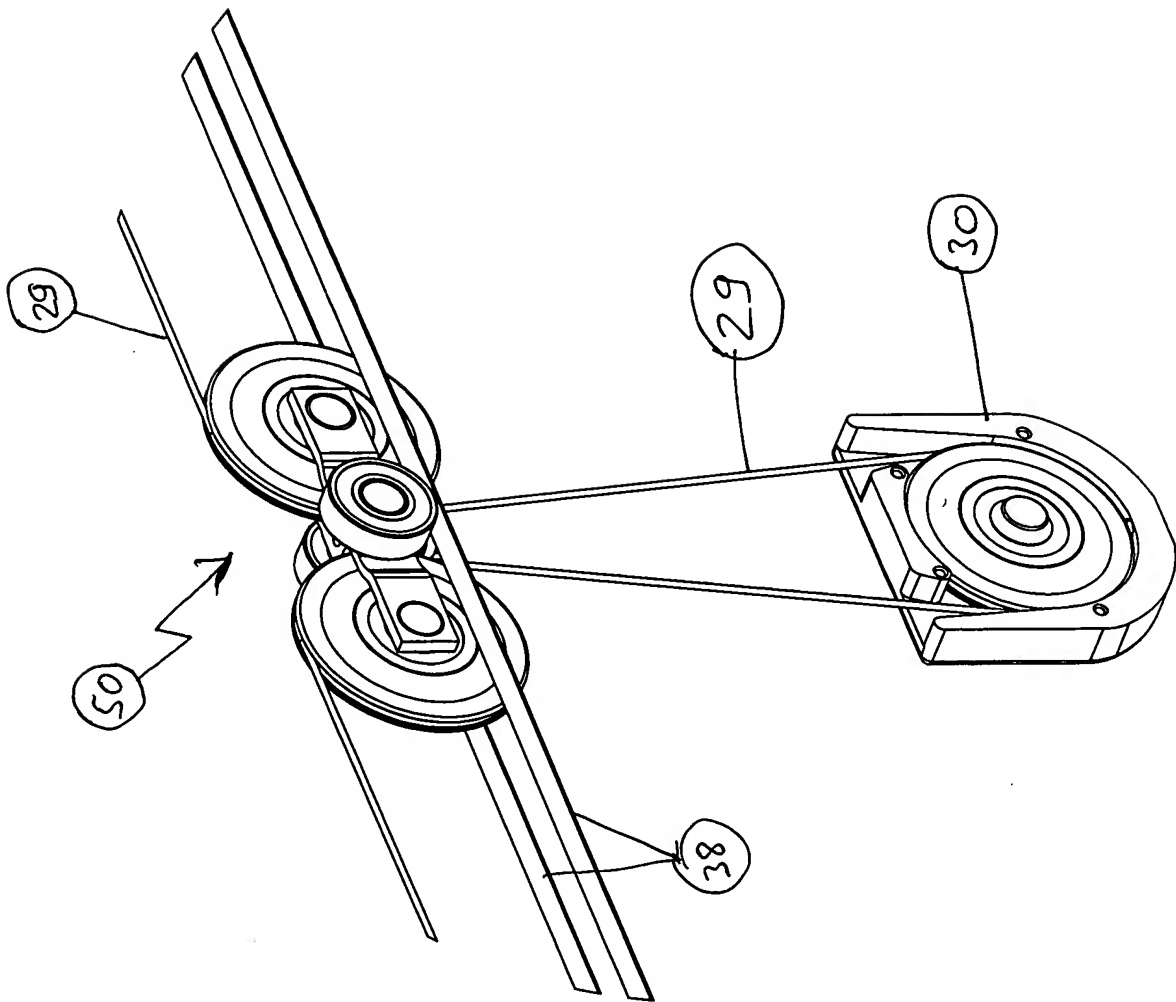


Figure 8

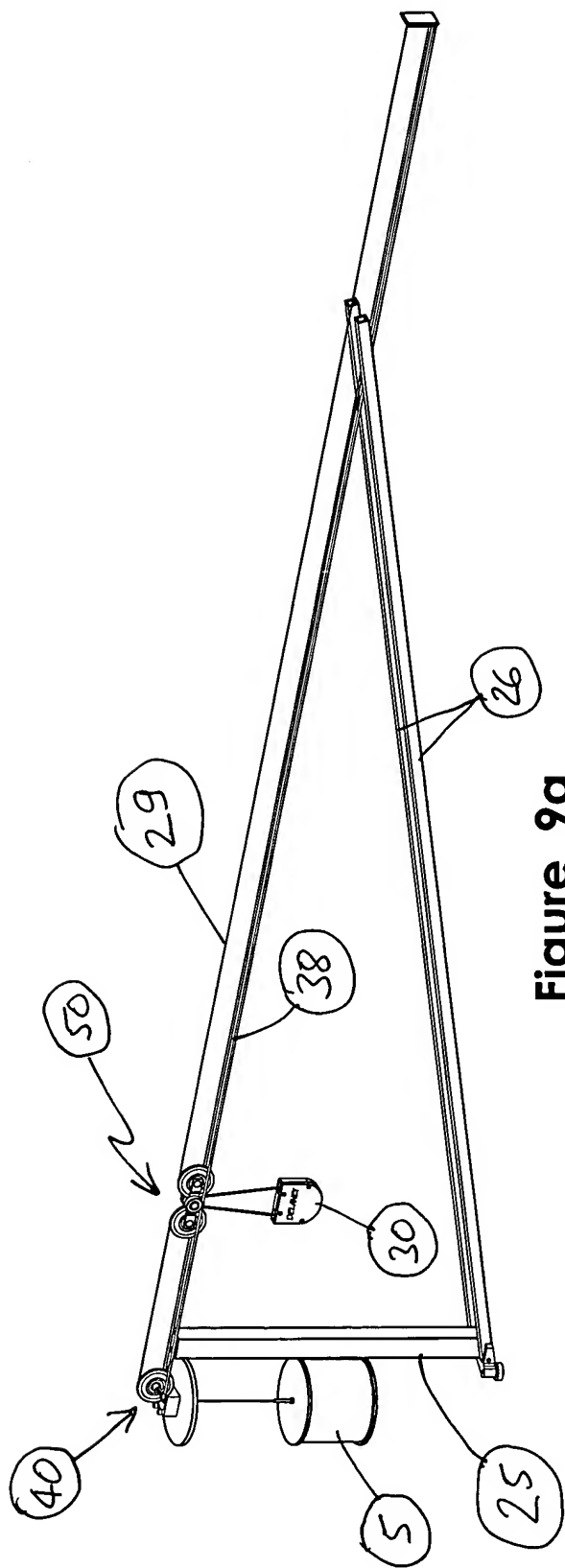


Figure 9a

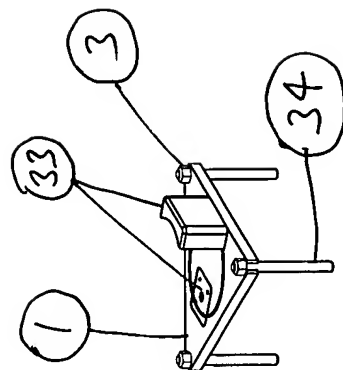


Figure 9b

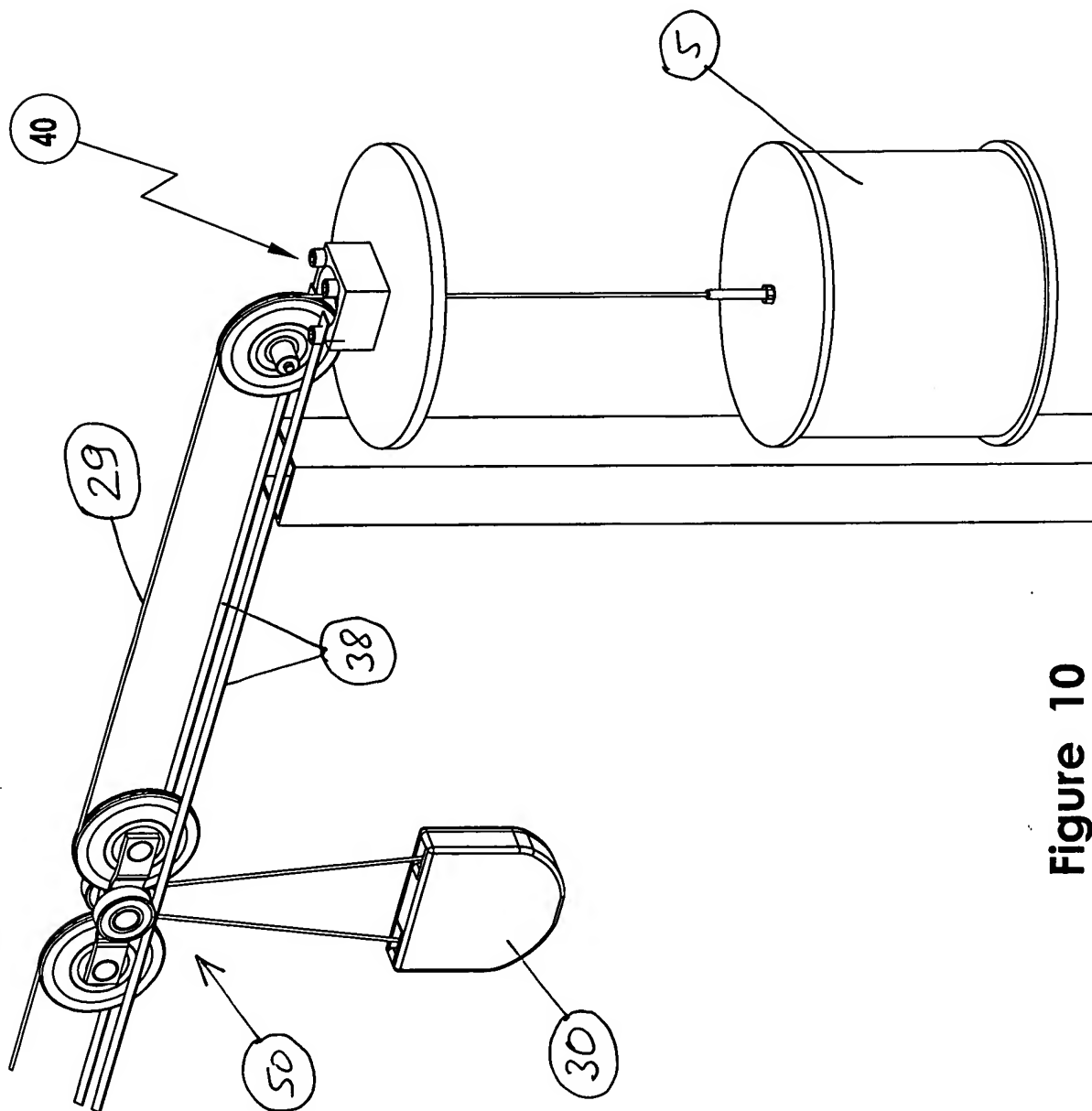


Figure 10

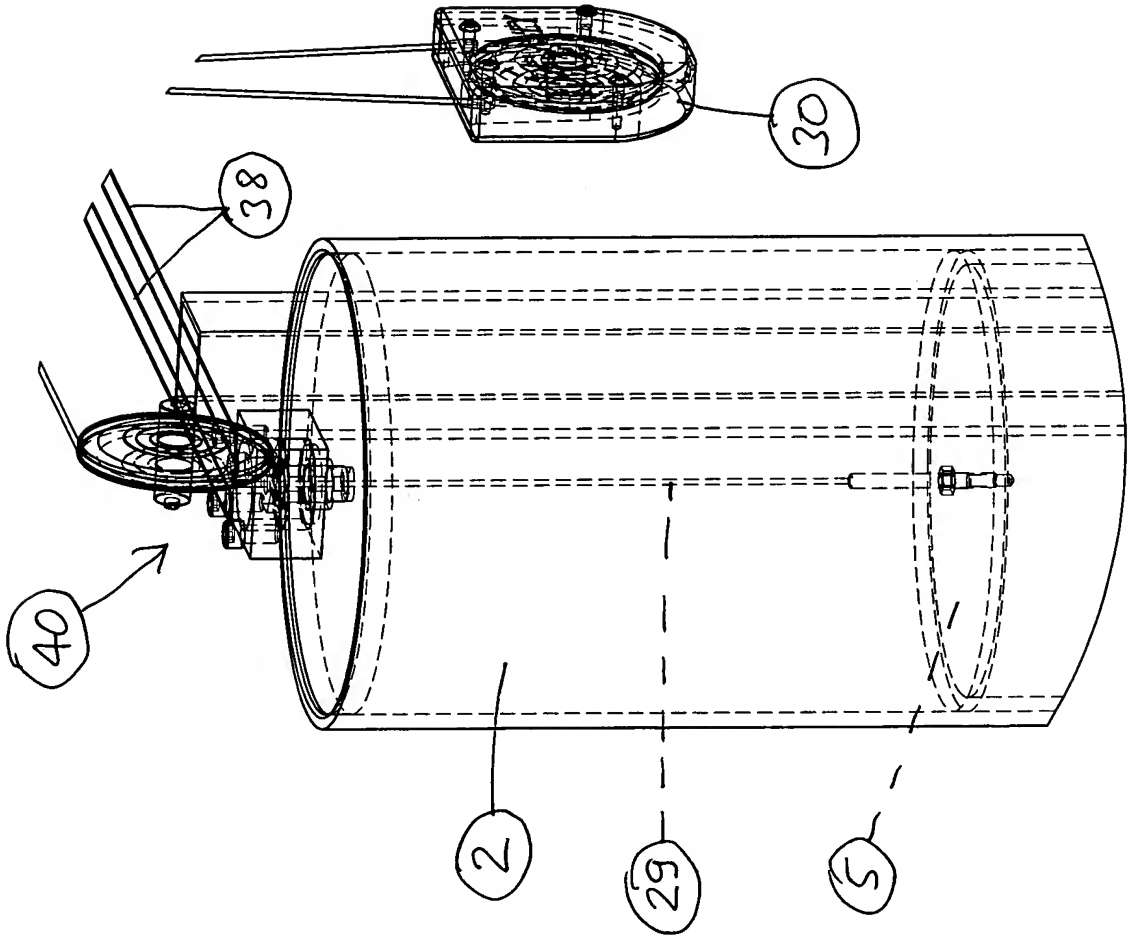


Figure 11

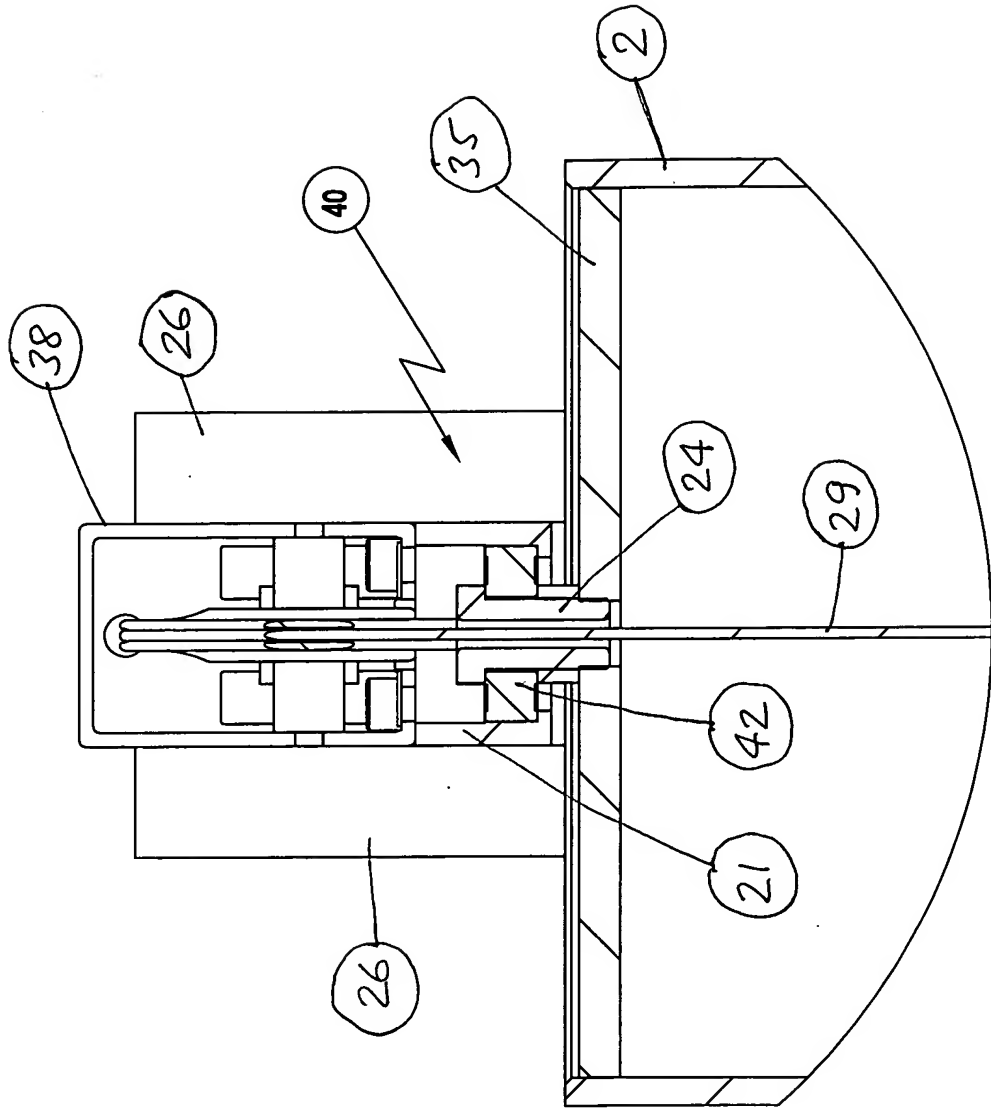


Figure 12